

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**ORDER NO. 96-079  
UPDATED WASTE DISCHARGE REQUIREMENTS AND  
RESCISSION OF ORDER NOS. 79-114, 88-109, 88-172, AND 89-025  
AND CLEANUP AND ABATEMENT ORDERS NO. 86-009 AND 91-084 FOR:**

West County Landfill, Inc., and  
West Contra Costa Sanitary Landfill, Inc.  
West Contra Costa Sanitary Landfill, Class II Waste Management Facility  
Richmond, Contra Costa County

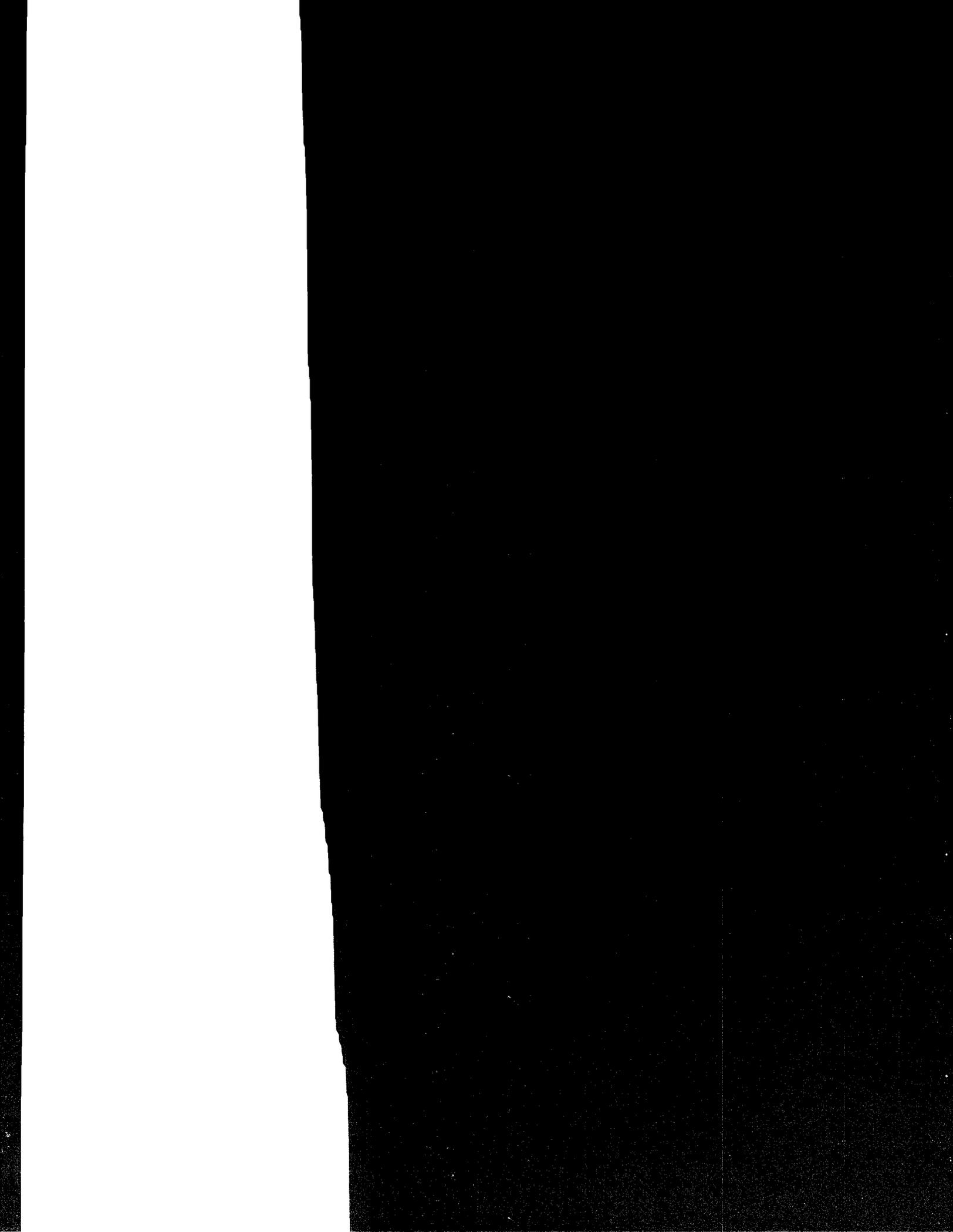
The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board), finds that:

**THE OWNER, OPERATOR, AND LOCATION**

West County Landfill, Inc. (WCL) currently owns the West Contra Costa Sanitary Landfill Class II Waste Management Facility (WCCSL Class II WMF), as ownership of this landfill was transferred from Richmond Sanitary Service to WCL in 1989. West Contra Costa Sanitary Landfill, Inc. currently operates the WCCSL Class II WMF. West County Landfill, Inc. and West Contra Costa Sanitary Landfill, Inc. are hereinafter referred to as the Discharger. The Discharger submitted a closure plan, dated September 20, 1994, with the most recent revisions received May 17, 1995, for the update of Waste Discharge Requirements at the site. The West Contra Costa Facility is located north of Interstate 580 and the Richmond-San Rafael Bridge along the San Pablo Bay shoreline, at the west end of Parr Boulevard, as shown in Figures 1 and 2. The Discharger owns 350 acres of which the Class I Hazardous Waste Management Facility (Class I HWMF) covers 28 acres and the WCCSL Class II WMF covers 322 acres. Portions of WCCSL Class II WMF fall within both the City of Richmond and unincorporated portions of Contra Costa County.

**CLOSURE ORDER**

The objectives for this order are to: 1) provide guidance for closure design and implementation and postclosure monitoring of the WCCSL Class II WMF; 2) revise the site assessment, surface water, groundwater, and leachate monitoring programs; 3) reflect required from investigations conducted since the issuance of Order No. 88-109; 4) revise the site into compliance with the current regulations of Article 5, Chapter 15, Section 23 of the California Code of Regulations.



### PERMIT HISTORY

4. On June 15, 1988, the Board adopted Order 88-109 which prescribed Waste Discharge Requirements (WDRs) for the operation and monitoring of the WCCSL Class II WMF. WDR No. 88-109 was amended by WDR Nos. 88-172 and 89-025. Prior to Order No. 88-109, the Board issued Waste Discharge Requirement Nos. 76-028, 78-009, and 79-114, each of which addressed operation and monitoring at both the Class I and II units in addition to other portions of the site.

Cleanup and Abatement Order (CAO) No. 91-084 was issued on May 21, 1991 for the Class I HWMF, requiring solidification of the ponds and construction of a pilot facility for the treatment of leachate from initially the Class I area. The Class I ponds have been solidified and a leachate treatment facility was constructed and currently treats leachate from the Class I facility. The requirements of CAO No. 91-084 have been met.

5. The Class I HWMF is currently undergoing pre-closure activities, including grading and drainage activities, and preparation of CEQA compliance documents. The Department of Toxic Substances Control (DTSC) is acting as the lead agency in the oversight of closure activities at the Class I HWMF.
6. WDR No. 95-175 was issued to multiple parties including the Discharger in August 1995, and specified the design, construction, monitoring, and reporting requirements for a Thermal Soil Treatment Facility (TSTF) on a closed portion of the WCCSL Class II WMF. Included in those WDRs were specifications for closure and final cover construction specific only to that portion of the facility beneath the TSTF. The basic final cover design and closure requirements specified in WDR No. 95-175 will be compatible with the requirements set forth in this Order. This Order does not affect the TSTF portion of the WCCSL Class II WMF above the final cover, as that is addressed by WDR No. 95-175.

### SITE DESCRIPTION AND HISTORY

7. The WCCSL Class II WMF first began accepting wastes, including municipal solid waste, sewage sludge, liquids, and industrial wastes in 1953. Industrial wastes accepted included liquids, sludges, and solids contaminated with heavy metals and oil, and other miscellaneous wastes. After 1976, no hazardous wastes other than asbestos and infectious wastes were permitted for disposal at the WCCSL Class II WMF. California hazardous wastes were allowed for disposal when the site was designated a Class II-1 site.
8. Based on current projections for incoming waste volumes, it is estimated the WCCSL Class II WMF will stop receiving waste in 1998. Portions of the WCCSL Class II WMF will reach final grade and elevation prior to the landfill's closing. Closure construction for these portions will commence as each area reaches final grade, and as such, the final cover for WCCSL Class II WMF will be completed in sections. Closure activities have already commenced in some portions of the landfill in accordance with the closure design as detailed in the discharger's Final Closure Plan (WCCSL, 1994). This Order supplements the Closure Plan in four general

areas: (1) groundwater and surface water monitoring, (2) requirements for closure design and construction, (3) leachate collection, and (4) closure construction scheduling. The California Integrated Waste Management Board is the lead agency regarding review and approval of the Closure Plan for the WCCSL Class II WMF.

9. The 160 acre the WCCSL Class II WMF has a total inplace volume of approximately 17 million cubic yards of fill. Maximum waste thickness at final fill elevations will be 140-160 feet at the thickest point of the landfill with the base of waste as much as 25 feet below sea level. The base of waste is below sea level and varies due to both the depth of the initial excavation and subsidence caused by the weight of the disposed waste.

#### **WASTES AND THEIR CLASSIFICATION**

10. The Discharger is currently permitted to dispose of the following wastes at the WCCSL Class II WMF:
  - a. Municipal solid waste, construction and demolition debris, sewage sludge, and self-hauled waste. In addition, petroleum contaminated soils, treated auto shredder waste (TASW), and sewage and waste water treatment sludges and grit are accepted for disposal. Municipal solid waste accounts for approximately 70 percent of the waste received at the facility.
  - b. No hazardous waste, except as specified in this Order, shall be accepted for disposal at the landfill.

#### **COMPOSTING OPERATIONS**

11. The Discharger currently operates a composting facility on a portion of the WCCSL Class II WMF that has interim cover. This Board gave approval for the continued operation of the composting facility on interim cover, as long as the interim cover met final cover requirements for thickness, permeability, and grading as outlined in the WCCSL Class II WMF Closure Plan. The Discharger will move the composting operation from the present location to a portion of the landfill that will be underlain by final cover that meets the requirements of this order and all applicable regulations.

#### **GEOLOGY**

12. The WCCSL Class II WMF is located along the eastern shore of the San Pablo Bay along the tidal wetlands at the mouth of San Pablo Creek. This area is a part of the Coast Range physiographic province. The natural terrain surrounding the site is flat and the site is bounded by natural marshlands and the San Pablo Bay on the north, tidal mud flats on the West, natural marshlands on the south, and San Pablo Creek on the east boundary. The remaining waste fill capacity at the WCCSL Class II WMF is vertical over the existing landfill footprint.

13. **Stratigraphy:** The WCCSL Class II WMF is founded on Bay Mud sediments in the Richmond Basin. Locally, the Bay Mud is divided into Older and Younger Bay Mud. The Younger Bay Muds generally occurs between the surface and depths of approximately -50 MSL. and extends to elevations as low as -70 feet MSL, based on location. Bay Mud is predominantly comprised of interfingering alluvial fan/stream channel and estuarine (bay mud) deposits. The Younger Bay Muds consist of very soft to firm, massively- bedded clay, silty to sandy clay, and clayey to sandy silts with thin sand, silt, and rare gravel interfingered and lenticular subunits. These subordinate subunits are ancestral channel deposits from San Pablo and Wildcat Creek in addition to other nearby surface drainages. Sand layers are more extensive along the eastern portion of the WCCSL Class II WMF, near San Pablo Creek. The Older Bay Muds contain more continuous coarse grained subunits within thick clays. Older Bay Muds are typically first encountered at depths ranging from 50 to 70 feet bgs and are primarily composed of firm to very stiff clay and silty clay. Below 100 feet, sand layers tend to thicken, ranging from one to twenty feet in thickness. Bedrock is estimated to exist at a depth of approximately 300 feet beneath the site (WCCSL, 1987; Wahler Associates, 1991).
14. **Structure:** No known faults have been mapped at the site. The nearest fault is the San Pedro/San Pablo Fault, which is inferred to pass  $\frac{3}{4}$  of a mile southwest of the site, and is not considered an active fault. Active faults that pose seismic hazards to the site include the Hayward Fault which passes approximately 3 miles northeast of the site, and the San Andreas Fault which is about 16 miles southwest of the site.

## **SURFACE AND GROUNDWATER**

15. **Surface Water:** San Pablo Creek is the major surface water drainage in the vicinity of the site, running to the northeast of the property. The northeast and west boundaries, and a portion of the south boundary of the site are marked by tidal marshlands. The northwest and north boundaries are immediately adjacent to San Pablo Bay.
16. **Groundwater:** Groundwater flow beneath the site has been classified into four water bearing zones: surficial, shallow, medium, and deep zones. The surficial zone is the uppermost zone, occurring between +20 and -10 feet mean sea level (MSL). Within the site, much of the surficial zone consists of refuse and fill. The shallow zone underlies the surficial zone and occurs between -10 and -30 feet MSL. This zone contains predominantly naturally occurring Bay Mud sediments, but also contains some waste fill in those areas which have exhibited the largest settlement as a result of landfill loading (e.g. in the areas of maximum waste thickness). The medium zone underlies the shallow zone and extends from -30 to -60 feet MSL. This zone contains only naturally occurring Bay Mud sediments which are composed predominantly of clay and clayey silt, with occasional sand lenses or layers. The deep zone underlies the medium zone and extends from -60 to -135 feet MSL. The sediments in this zone consist predominantly of clays and silts, with occasional sand lenses or layers. The sand units below -60 feet MSL are generally fewer in number but thicker than those above -60 feet MSL. The surficial, shallow, and medium zones as well as the uppermost portion of the deep zone beneath the WCCSL Class II WMF contain brackish to saline water and typically exhibit extremely low yields. These water bearing zones are therefore unusable as potential sources of

drinking water. Groundwater in the lower portion of the deep zone (sand units between -113 and -132 feet MSL) have TDS and yield values that enable this portion to be considered a potential drinking water source.

17. Beneficial Uses: The Regional Board adopted a revised Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan) on June 21, 1995. This updated and consolidated plan represents the Board's master water quality control planning document. The revised Basin Plan was approved by the State Water Resources Control Board and the Office of Administrative Law on July 20 and November 13, respectively, of 1995. A summary of regulatory provisions is contained in Title 23 of the California Code of Regulations at Section 3912. The Basin Plan defines beneficial uses and water quality objectives for waters of the State, including surface waters and groundwaters.

The beneficial uses for San Pablo Bay in the vicinity of the site are as follows:

- Industrial service supply;
- Navigation;
- Contact and non-contact recreation;
- Commercial and sport fishing;
- Wildlife and estuarine habitat;
- Preservation of rare and endangered species;
- Fish migration and spawning; and
- Shellfish harvesting.

The beneficial uses for San Pablo Creek in the vicinity of the site are as follows:

- Wildlife and estuarine habitat;
- Non-contact water recreation;
- Fish migration and spawning;
- Preservation of rare and endangered species; and
- Shellfish harvesting.

The potential beneficial uses for groundwater in the vicinity of the site are as follows:

- Domestic and municipal supply (deeper than -100 feet msl);
- Agricultural supply (deeper than -100 feet msl);
- Industrial process and service supply (deeper than -100 feet msl); and
- Discharge to San Pablo Bay and wetlands surrounding the site (primarily for surficial, shallow, and medium zone hydrogeologic units).

18. Historic Background groundwater quality: The establishment of background groundwater quality wells at the WCCSL Class II WMF has been ineffective because of variable groundwater salinity. This variability is a function of the distance of the well from San Pablo Creek and San Pablo Bay and the depth of the water bearing zone. The surficial, shallow, and medium zones beneath the WCCSL Class II WMF contain brackish to saline water varying in concentration and composition with depth and distance to the creek and bay.

19. **Groundwater Degradation:** The discharger submitted a Solid Waste Assessment Test (SWAT) on July 1, 1987 pursuant to Section 13273 of the Water Code. The SWAT investigation is intended to determine a landfill's impact on surface and groundwater. As a part of the SWAT investigation, 27 "M" wells (M-1 through M-27) were installed. These wells were screened in the surficial, shallow, and medium water bearing zones. The results of the SWAT investigation and subsequent verification monitoring confirmed the presence of organic compounds in three wells (M-1, M-5, and M-24) located in different areas along the perimeter of the WCCSL Class II WMF. Concentrations for some of these compounds are listed in Table 1.

**Table 1 - Historic Groundwater Impacts for TPH-G and Benzene**

Constituent	Groundwater Well M-1 <sup>A,B</sup>	Groundwater Well M-5 <sup>A,B</sup>	Groundwater Well M-24 <sup>C</sup>
TPH-G (ug/L)	550	15,000	_____
Benzene (ug/L)	10 - 18	1700 - 2100	10

**NOTES:**

- A Groundwater wells M-1 and M-5 were abandoned as part of slurry wall construction along the northeast perimeter of the landfill.
- B M-5 - also contained significant concentrations of other organic compounds.
- C M-24 is monitored quarterly and still exhibits low semivolatile concentrations (2-8.5 ppb dibenzofuran, flourene, acenaphthene, and phenanthrene).

Reference: "Groundwater Monitoring for the M-5 Slurry Wall, Class II Waste Management Facility", (EMCON, 1995).

**SURFACE AND GROUNDWATER MONITORING**

20. In 1986, low level concentrations of organic compounds were detected in San Pablo Creek surface water samples. As a result, in 1987, the Discharger began monitoring surface water quality in San Pablo Creek adjacent to the WCCSL Class II WMF. In quarterly monitoring since 1991, surface water analytical data has shown only infrequent detections of TPH-G at concentrations below the practical quantitation limits for the analyses, and no BTEX detections (EMCON, 1996). Since the initiation of creek monitoring, xylenes were detected twice and toluene once, all at concentrations below 2 ug/L.
21. The Discharger currently monitors groundwater quality at the WCCSL Class II WMF in the surficial and shallow zones. Monitoring is conducted under two different programs: (1) the

Self Monitoring Program (SMP) and (2) the Verification Monitoring Program (VMP). Multiple construction phases for the slurry wall have required the decommissioning of most of the original monitoring wells, of which most have not been replaced. Presently, only four monitoring wells remain from the combined SMP/VMP monitoring programs at the WCCSL Class II WMF. An additional 20 monitoring wells screened in the surficial, shallow, and medium zones have been installed and monitored on an inconsistent basis, as they have not been part of any monitoring program. These wells are included as point of compliance monitoring locations in the Discharge Monitoring Plan (Attachment A). An additional 18 wells will be installed and monitored as part of the Discharge Monitoring Program. Several existing and future wells are along the shared Class I/Class II boundary, and will also be monitored as part of the Class I HWMF Monitoring Program.

## **LEACHATE CHARACTERIZATION AND MONITORING**

22. Leachate Characterization and Monitoring: A series of wells have been installed within the Class II landfill to measure leachate levels and for use in the extraction of leachate from the WCCSL Class II WMF. Leachate levels have been monitored at the WCCSL Class II WMF twice monthly since October 1983. Recent calculations estimate leachate volume within the WCCSL Class II WMF at approximately 150 million gallons. Leachate is also sampled and analyzed on a monthly basis for pH, temperature, and conductivity. Leachate from the WCCSL Class II WMF is discharged to the West County Wastewater District (WCWD) which analyzes the leachate quarterly for organic constituents and metals in addition to conducting a bioassay on leachate.
23. Leachate Extraction: Five leachate extraction areas exist within the WCCSL Class II WMF. Each extraction area consists of several leachate wells connected by french drain to a central extraction sump. These extraction areas are constructed within the waste and line the perimeter of the landfill. Continuous leachate pumping to drawdown the leachate volumes within the landfill began in 1988. This system is currently manually operated, however the Discharger is in the process of refitting key extraction sumps with automated leachate level monitoring and pumping systems. The automated program will pump leachate from the extraction sumps at frequencies and rates that establish a continuous inward gradient throughout the WCCSL Class II WMF. Along the Class I HWMF/WCCSL Class II WMF shared boundary, the gradient will be inward toward the HWMF. Currently, extracted leachate is transmitted to the interim pumping station of above ground storage tanks either by water truck or single-walled piping. The leachate is then discharged from the pump station through a single-walled pipe to the WCWD treatment plant.

## **CLOSURE DESIGN AND REQUIREMENTS**

24. Cover Design: The final cover design detailed in the Discharger's Closure Plan (WCCSL, 1994) is comprised of the following components:

- A foundation layer (2 foot minimum thickness) comprised of clean soil or treated soil from the onsite thermal soil treatment facility, placed above compacted waste;
  - A low permeability layer (1 foot minimum thickness and hydraulic conductivities of  $1 \times 10^{-6}$  cm/s or less); and
  - A protective/vegetative soil layer (1-foot minimum thickness).
25. Bay Mud Barrier and slurry wall: A subsurface, low permeability bay mud barrier wall was originally constructed around the entire WCCSL Class II WMF in 1977-78 to contain horizontal migration of landfill leachate. A series of investigations from 1988 through 1991 indicated the presence of sand channels beneath the bay mud barrier. Subsequent to these investigations, sections of Soil-Cement-Bentonite (SCB) wall have been constructed to replace portions of the original bay mud barrier. Upon completion, the WCCSL Class II WMF will be encircled by a low permeability containment wall to inhibit lateral migration of leachate constituents. The performance requirements for the containment wall are:
- In-situ wall hydraulic conductivities of  $1 \times 10^{-6}$  cm/s or less;
  - A two-foot minimum wall thickness; and
  - The containment wall will be keyed into the underlying bay mud a minimum five-foot depth.

The containment wall surrounding the Class II unit is being constructed in sections. Portions of the SCB wall constructed in 1992 and 1993 have exceeded the in-place hydraulic conductivity of  $1 \times 10^{-6}$  cm/s [Sections 2541(c) and 2541(e), Chapter 15]. Those portions of the SCB wall that failed to meet hydraulic conductivity requirements are scheduled to be rebuilt.

26. Stability/Liquefaction: Analysis for liquefaction potential indicates that some portions of the WCCSL Class II WMF site may be potentially liquefiable during earthquakes which affect the site. Drilling logs indicate areas containing well sorted sands with less than 15% clay, many of which are low density as indicated by "modified" standard penetration tests. Subsequent analysis of recent Cone Penetrometer Tests (CPT) indicate that the extent of the sand unit may be much more limited than originally interpreted (Pyke, 1995). Because the WCCSL Class II WMF has a very high water table, these deposits are saturated. The primary areas of potential liquefaction concern are located near the San Pablo Creek channel and along the northeastern perimeter of the landfill. (Wahler, 1993)

## REGULATORY CONSIDERATIONS

27. On October 9, 1991, the U.S.EPA promulgated regulations (40 CFR Parts 257 and 258, or Subtitle D) that apply, in California, to dischargers who own or operate Class II or III landfills at which municipal solid waste is discharged. The majority of the Subtitle D regulations became effective on October 9, 1993.
28. The Regional Board adopted Order No. 93-113 issuing a general amendment of Waste Discharge Requirements to all Municipal Solid Waste Landfills in this Region, including

WCCSL Class II WMF. Order No. 93-113 was issued to bring this Region's Municipal Solid Waste Landfills into compliance with Subtitle D.

29. Federal Regulations [40 Code of Federal Regulations (CFR) Parts 122, 123, and 124] require specific categories of industrial activities, including landfills, to obtain an NPDES permit for storm water discharges. The State Water Resources Control Board (SWRCB) has issued a General Permit for Storm Water Discharges Associated with Industrial Activities (NPDES Permit No. CAS000001). The WCCSL Class II WMF is covered by the SWRCB's General Permit under permit No. 207S05532.

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

30. This action is categorically exempt from the provisions of the California Environmental Quality Act pursuant to Section 15308, Title 14 of the California Code of Regulations.

### **NOTICE AND MEETING**

31. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge, and provided them with an opportunity to submit their written views and recommendations.
32. The Board in a public meeting heard and considered all comments pertaining to the site.

IT IS HEREBY ORDERED that the Discharger, their agents, successors and assigns, shall meet the applicable provisions contained in Title 23, Division 3, Chapter 15 (Chapter 15) of the California Code of Regulations and Division 7 of the California Water Code, and shall comply with the following:

#### **A. PROHIBITIONS**

1. The disposal of waste shall not create a pollution or nuisance as defined in Section 13050 (1) and (m) of the California Water Code.
2. Wastes shall not be placed in or allowed to contact ponded water from any source whatsoever.
3. Wastes shall not be disposed of in any position where they can be carried from the disposal site and discharged into waters of the State or of the United States.
4. Leachate from wastes and ponded water containing leachate or in contact with refuse shall not be discharged to waters of the State or of the United States.
5. Wastes shall not be stored upon closed portions of the WCCSL Class II WMF outside of designated areas (composting, petroleum contaminated soils, waste designated for burial, etc.).

6. No liquid wastes (i.e., less than 50% solids), except as approved by this Order, shall be disposed of at this site.
7. The discharger, or any future owner or operator of this site, shall not cause the following conditions to exist in waters of the State at any place outside the waste management facility:
  - a. Surface Waters:
    - Floating, suspended, or deposited macroscopic particulate matter or foam;
    - Bottom deposits or aquatic growth;
    - Adversely alter temperature, turbidity, or apparent color beyond natural background levels;
    - Visible, floating, suspended or deposited oil or other products of petroleum origin; and
    - Toxic or other deleterious substances to be present in concentrations or quantities which may cause deleterious effects on aquatic biota, wildlife or waterfowl, or which render any of these unfit for human consumption either at levels created in the receiving waters or as a result of biological concentrations.
  - b. Groundwater:
    - The groundwater shall not be degraded as a result of the waste disposal operation.

**B. SPECIFICATIONS**

1. All reports pursuant to this Order and/or closure of the WCCSL Class II WMF shall be prepared under the supervision of a registered civil engineer, California registered geologist or certified engineering geologist.
2. Deletion, abandonment, or destruction of wells that are a part of the Discharge Monitoring Program (Attachment A) shall not be initiated without prior approval from the Executive Officer.
3. The site shall be protected from any washout or erosion of wastes from inundation which could occur as a result of flooding with a return frequency of 100 years. The waste management unit and containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1000 year, 24-hour precipitation conditions.
4. The closure of the landfill shall be designed and constructed in conformance with Discharger

to include, 2 feet of structural base, 1 foot minimum of a low permeability clay barrier, and 1 foot minimum of vegetative soil. The final cover must also meet all other applicable requirements as described in Article 8 of Chapter 15.

6. The Discharger shall monitor the site pursuant to the attached Discharge Monitoring Program. Upon approval of Pursuant to Section 2550.3 of the Revised Article 5, Chapter 15, these Waste Discharge Requirements specify the constituents of concern to which the water quality protection standard of Section 2550.2 of Article 5 applies. Constituents of concern are the waste constituents, reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in the waste management unit. The constituents of concern are listed in the attached Discharge Monitoring Program.
7. This facility is currently in Corrective Action Monitoring as outlined in this Order and attached Discharge Monitoring Plan. The Discharger shall submit a revised Corrective Action Groundwater Monitoring Program as part of a required submittal in Provision 7.
8. The Discharger shall install any reasonable additional groundwater and leachate monitoring devices required to fulfill the terms of any Discharge Monitoring Program issued by the Executive Officer.
9. Methane and other landfill gases shall be adequately vented, removed from the landfill units, or otherwise controlled to minimize the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration from the landfill.
10. This Board considers the Discharger to have continuing responsibility for correcting any problems which arise in the future as a result of this waste discharge or related operations during the active life and postclosure maintenance period.
11. The Discharger shall maintain all devices or designed features, installed in accordance with this Order such that they continue to operate as intended without interruption.
12. The Discharger shall provide a minimum of two surveyed permanent monuments near the landfill from which the location and elevation of wastes, containment structures, and monitoring facilities can be determined throughout the operation and post-closure maintenance period. These monuments shall be installed by a licensed land surveyor or registered civil engineer.
13. The Board shall be notified immediately of any slope failure occurring in the waste management unit. Any failure which threatens the integrity of containment features or the landfill shall be promptly corrected after approval of the method and schedule by the Executive Officer.
14. The Discharger shall submit, within 90 days after the closure of any portion of the landfill, a closure certification report which documents that the area has been closed according to the requirements of this Order and Chapter 15. The discharger shall certify under penalty of

- perjury that all closure activities were performed in accordance with the most recently approved closure plan and in accordance with all applicable regulations.
15. The Discharger shall comply with all applicable provisions of Chapter 15 that are not specifically referred to in this Order.
  16. Unsaturated zone monitoring at the WCCSL Class II WMF will not be required as the base of waste in the landfill is at or below the elevation of the uppermost aquifer.
  17. The Discharger shall maintain and monitor all operations and containment systems at the WCCSL Class II WMF, including the waste unit: (1) so as not to cause any further release to surface or groundwater, and (2) in order to achieve the corrective action goals established in the Closure Plan and the Discharge Monitoring Program. These Corrective Actions include: (1) lateral containment of the WCCSL Class II WMF through the installation of a low-permeability barrier (slurry wall or bay mud barrier); (2) establishing an inward gradient across the lateral containment structure throughout the landfill except along the boundary shared with the Class I HWMF, where the gradient will be toward the HWMF; (3) construction of a low-permeability final cover over the WCCSL Class II WMF. The Discharger shall also maintain and monitor all operations and containment systems at the WCCSL Class II WMF so as not to cause any new release that results in a significant difference between water quality parameters at the point of compliance and the Water Quality Protection Standards as defined in Attachment A, Part A. The point of compliance is a vertical surface located at the outer edge of the WCCSL Class II WMF (inclusive of the containment structures) that extends through the uppermost aquifer underlying the unit.
  18. Treated Auto Shredder Waste shall contain no more than 50 mg/kg of PCBs and shall only be discharged to a portion of the facility in which it will not come into contact with acidic leachate.
  19. Chemical analyses shall be conducted on sewage sludge and other industrial wastes according to the Discharge Monitoring Program (Attachment A, Part B under Waste Monitoring). The wastes will be acceptable for disposal if the analytical results indicate the wastes contain constituent concentrations below these values. Sludges containing hazardous concentrations and hazardous wastes are not acceptable for disposal at this waste management unit, unless given a variance.
  20. Water used during disposal operations shall be limited to dust control, fire suppression and earthfill moisture conditioning.
  21. Surface drainage from tributary areas and internal site drainage from surface and subsurface sources shall not contact or percolate through waste during disposal operations or during the post-closure life of the site. Drainage courses constructed over intermediate covered fill areas shall be maintained to prevent exposure of wastes. Drainage courses constructed over final capped wastes will be underlain with a minimum 5-foot thickness of compacted earthfill or a lined drainage course which offers equivalent protection.

### **CLOSURE REQUIREMENTS**

22. Treated soil from the onsite Thermal Soil Treatment Facility may be used as foundation material for the final cover or as interim/daily cover. This soil may not be placed in a manner that allows it to come into contact with landfill leachate or below the 15 foot elevation (msl).
23. The Dischargers shall, at a minimum, monitor leachate elevations throughout WCCSL Class II WMF on a monthly basis.
24. The Dischargers shall design, construct, and maintain perimeter levees, waste placement locations, final cover system and containment structures, gas and leachate extraction and containment systems, SCB walls, surface drainage, and other landfill facilities that may impact water quality, to withstand the maximum credible earthquake. These features shall also be designed, constructed, and maintained to preclude failures due to rapid geologic change, subsidence, liquefaction, and tsunamis.
25. All landfill containment systems including, but not limited to, leachate and groundwater monitoring, SCB walls, final cover system, and leachate sumps and extraction system, and surface water drainage, shall be maintained operational for the entire compliance period of the landfill. The compliance period for the WCCSL Class II WMF shall extend until the waste no longer poses a threat to water quality.
26. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site and to prevent surface drainage from contacting or percolating through wastes. In addition, during the rainy season when precipitation can be expected, a minimum one foot thickness of low permeability cover shall be maintained over all but the active disposal area of the landfill. The active disposal area shall be confined to the smallest area practical based on the anticipated quantity of waste discharge and other disposal site operations.
27. The waste management unit shall be designed and constructed to prevent migration of wastes from the unit to adjacent geologic materials, surface water, and groundwater, during operations, closure, and the post-closure maintenance period.

### **COMPOSTING REQUIREMENTS**

28. All composting operations at the WCCSL Class II WMF shall be conducted only on portions of the landfill that meet or exceed requirements as specified in this Order and Chapter 15. Additionally, composting operations must be underlain by a buffer layer (1-foot minimum thickness) that is equivalent to the protective/vegetative soil cover. This buffer layer will protect the integrity of the final cover unit from heavy equipment operated in conjunction with composting activities.

29. The addition of water to aid in the composting process shall be minimized so as not cause infiltration into the final cover or surface runoff. Composting operations shall not degrade surface water in the vicinity of the site, nor adversely affect the final cover.

#### LEACHATE MANAGEMENT REQUIREMENTS

30. All surface leachate piping shall be double walled. Leachate storage facilities shall have double containment systems. A schedule for compliance with this Specification shall be included as part of Provision No. 6.
31. Following activation of the leachate pumping system at WCCSL Class II WMF and at the Class I HWMF, an inward hydraulic gradient shall be permanently established across the WCCSL Class II WMF perimeter except along the shared HWMF boundary, where the hydraulic gradient shall be toward the HWMF. Furthermore, leachate elevations within the WCCSL Class II WMF shall be maintained at or below 0 feet msl. The Leachate Extraction System shall be inspected on a weekly basis, at a minimum.
32. The Leachate Extraction System will be operated and maintained to ensure that leachate can flow freely in the collection sumps. Corrective measures will be taken to assure that the leachate sumps and the extraction system remain operational throughout disposal operations, closure, and the post-closure maintenance periods.

#### C. PROVISIONS

1. Except as provided in the schedules given below, the Discharger shall comply with this order immediately upon adoption. The Dischargers shall comply with the Prohibitions, Specifications, and Provisions specified below according to the following schedules:
2. The Discharger shall submit monitoring reports in accordance with the schedule provided in the attached **Discharge Monitoring Plan** (Attachment A).
3. The Discharger shall submit a complete detailed and updated **Post Earthquake Inspection and Corrective Action Plan** acceptable to the Executive Officer, to be implemented in the event of any earthquake generating ground shaking of Richter Magnitude 6.5 or greater at or within 30 miles of the facility. The report shall describe the containment features, and groundwater monitoring potentially impacted by the static and seismic deformations of the facility. The plan shall provide for reporting results of the post earthquake inspection report to the Board within 72 hours of the occurrence of the earthquake. Immediately after an earthquake event causing damage to the facility structures, the corrective action plan shall be implemented and this Board shall be notified of any damage.

**REPORT DUE DATE: September 19, 1996**

4. The Discharger shall submit a **Leachate Contingency Plan** acceptable to the Executive Officer. This plan shall be implemented in the event of a leak or spill from any of the leachate handling facilities. The Discharger shall provide immediate notification to the Board and to the Local Enforcement Agency (LEA). The Discharger shall initiate this Corrective Action Plan to stop and contain the migration of pollutants from the site.

**REPORT DUE DATE: August 19, 1996**

5. The Discharger shall submit to the Board evidence of an updated **Irrevocable Closure Fund** or provide other means acceptable to the Executive Officer. This Fund is to ensure closure and postclosure maintenance of the WCCSL Class II WMF, pursuant to Section 2580(f) of Chapter 15, and must provide sufficient funds to properly close WCCSL Class II WMF and for any postclosure monitoring, leachate management, and maintenance of the site. For purposes of planning the amount of the Fund, the Discharger shall assume a postclosure period of at least 30 years. However the postclosure maintenance period shall extend as long as the wastes pose a threat to water quality.

**REPORT DUE DATE: August 19, 1996 and every five years thereafter**

6. The Discharger shall submit to the Board a **Final Cover/Closure Construction Plan** acceptable to the Executive Officer. This Plan will provide a schedule with dates for closure activities at the WCCSL Class II WMF, to ensure that the landfill is achieving closure in a timely manner. Included with this submittal will be a map depicting areas and dates that portions of the WCCSL Class II WMF final cover will be placed. The schedule shall include a date for closure of the landfill, after which no additional waste will be taken (excluding foundation material from the Thermal Soil Treatment Facility) at the landfill. Also included with this submittal will be a schedule for providing double containment to surface leachate piping and storage structures. All surface piping should be upgraded to double walled piping by January 31, 1997. A revised closure schedule shall be submitted as significant changes occur in the closure process.

**REPORT DUE DATE: July 19, 1996, update as schedule changes**

7. The Discharger shall submit to the Board a **Comprehensive Monitoring Program for Surface and Groundwater** acceptable to the Executive Officer. This Submittal shall include a Corrective Action Groundwater Monitoring Program and provide a complete and detailed description of proposed monitoring locations and frequencies, analytical parameters, and sampling methods, including the Corrective Action Program for groundwater and rationale supporting the proposed program. The Discharger shall also provide documentation demonstrating coverage under the SWRCB's General Permit for Storm Water Discharges Associated with Industrial Activities, including monitoring locations. The Discharge Monitoring Plan will be modified as necessary following submittal of a Comprehensive Monitoring Program acceptable to the Executive Officer.

**REPORT DUE DATE: December 20, 1996**

8. The Discharger shall submit to the Board a complete and updated **Leachate Management Plan** acceptable to the Executive Officer. This Submittal will provide a complete and detailed description of proposed near and long term leachate handling facilities at the WCCSL Class II WMF including: surface piping, storage, and containment (both primary and secondary); pumping program/schedule; monitoring locations and frequencies; analytical parameters for continued leachate characterization; transportation and disposal plan; and sampling protocols and rationale supporting proposed program. A schedule with dates for implementation of the leachate management activities shall also be included in this Plan.

**REPORT DUE DATE: December 19, 1996**

9. The Discharger shall submit to the Board a complete **Containment Wall Reconstruction Final Report** acceptable to the Executive Officer. This Report shall document the procedures and results for the reconstruction and in-place testing of the rebuilt portions of the containment wall around the WCCSL Class II WMF that currently fail to meet minimum standards as specified in Chapter 15.

**REPORT DUE DATE: March 1, 1997**

10. The Discharger shall submit to the Board a complete **Corrective Action Program Evaluation Report** acceptable to the Executive Officer. This Report will document the results and evaluate the effectiveness of corrective measures and monitoring implemented by the Corrective Action Program.

**REPORT DUE DATE: Within two years of completion of final cover**

11. The Discharger shall submit to the Board a complete **Leachate Reduction Evaluation Report** acceptable to the Executive Officer. This Report will document the results and evaluate the effectiveness of corrective measures and will include volumes pumped, changes in leachate levels, and any additional observations pertaining to the monitoring implemented by the Corrective Action Program. This Report shall be due annually with the Annual Groundwater Monitoring Report submitted in compliance with the Discharge Monitoring Program (Attachment A). Included with the first report, the Discharger shall submit to the Board a **Leachate Recovery System Installation Report** acceptable to the Executive Officer. This report shall be a compilation of the installed Leachate Recovery System and start-up of the automated system for the WCCSL Class II WMF, as well as provide maps and/or as-built drawings of all components of this system.

**REPORT DUE DATE: With Annual Groundwater Monitoring Report**

12. The Discharger shall submit to the Board a complete **Final Closure Construction Details (FCCD) Report** acceptable to the Executive Officer, for each portion of the site closed under the Partial Closure Program. This Report will include as-built drawing, construction quality assurance results with a written summary and all test results and certification by the Engineer

of Record. The report shall include an updated topographic map of the entire the WCCSL Class II WMF.

**REPORT DUE DATE: 45 days after completion of each portion of Final Cover Construction**

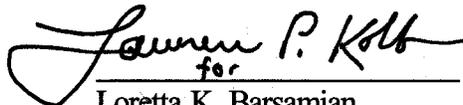
13. The Discharger shall submit to the Board a **Monitoring Well Installation Report** acceptable to the Executive Officer that provides well construction details, geologic boring logs, and well development logs for all new monitoring wells (leachate or groundwater) installed as part of the attached Discharge Monitoring Program (Attachment A) or as part of the future Groundwater Corrective Action Monitoring Program or any subsequent well installation. Documentation for monitoring wells installed as part of the future well installation activities is due 45 days following completion of well installation activities.

**REPORT DUE DATE: August 19, 1997 or 45 days following well installation activities**

14. The Discharger shall remove and relocate any wastes which are discharged in violation of this Order.
15. The Discharger shall file with this Board a report of any material change or proposed change in the character, location, or quantity of the waste discharge. For the purpose of these requirements, this includes any proposed change in the boundaries of the disposal areas or the ownership of the site.
16. The Discharger shall immediately notify the Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
17. The Discharger shall maintain a copy of this Order at the site so as to be available at all times to site operating personnel.
18. The Discharger shall permit the Board or its authorized representative, upon presentation of credentials:
  - Immediate entry upon the premises on which wastes are located or in which any required records are kept;
  - Access to copy any records required to be kept under the terms and conditions of this Order;
  - Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order or by any other California State Agency; and
  - Sampling of any discharge or groundwater governed by this Order.
19. This Board's Order Nos. 79-114, 88-109, 88-172, 89-025 and Cleanup and Abatement Orders Nos. 86-009 and 91-084 are hereby rescinded.

20. These requirements do not authorize commission of any act causing injury to the property of another or of the public; do not convey any property rights; do not remove liability under federal, state or local laws; and do not authorize the discharge of wastes without appropriate permits from other agencies or organizations.
21. This Order is subject to Board review and updating, as necessary, to comply with changing State or Federal laws, regulations, policies, or guidelines; changes in the Board's Basin Plan; or changes in the discharge characteristics.

I, Loretta K. Barsamian, Executive Officer, do hereby certify that the foregoing is a full, complete, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 19, 1996.

  
for  
Loretta K. Barsamian  
Executive Officer

Attachments: Figure 1. Site Location Map  
Figure 2. Site Map  
Attachment A - Discharge Monitoring Program

**References:**

EMCON, 1996, Fourth Quarter 1995 San Pablo Creek Sampling, West Contra Costa Sanitary Landfill.

EMCON, 1995, Groundwater Monitoring for the M-5 Slurry Wall, Class II Waste Management Facility, West Contra Costa Sanitary Landfill.

EMCON, 1992, Proposed Monitoring Program Class II Facility, West Contra Costa Sanitary Landfill.

Nevin, R. L., and W. C. Ellis, 1971, Hydrologic and Hydrogeologic Feasibility of the Richmond Sanitary Service Disposal Site.

Pyke, Robert, 1995, West Contra Costa Sanitary Landfill Class II Stability Analyses.

Wahler Associates, 1993, Deformation and Slope Stability Analyses, West Contra Costa Sanitary Landfill.

Wahler Associates, 1991, RCRA Facilities Investigation Workplan, West Contra Costa Sanitary Landfill, Contra Costa County, California, July 1991.

West Contra Costa Sanitary Landfill, Inc, 1994, Class II Landfill Final Closure Plan, with 1995 updates, West Contra Costa Sanitary Landfill, Richmond, California.

West Contra Costa Sanitary Landfill, Inc, 1987, Report of Waste Discharge, Class II Landfill, West Contra Costa Sanitary Landfill, Richmond, California.

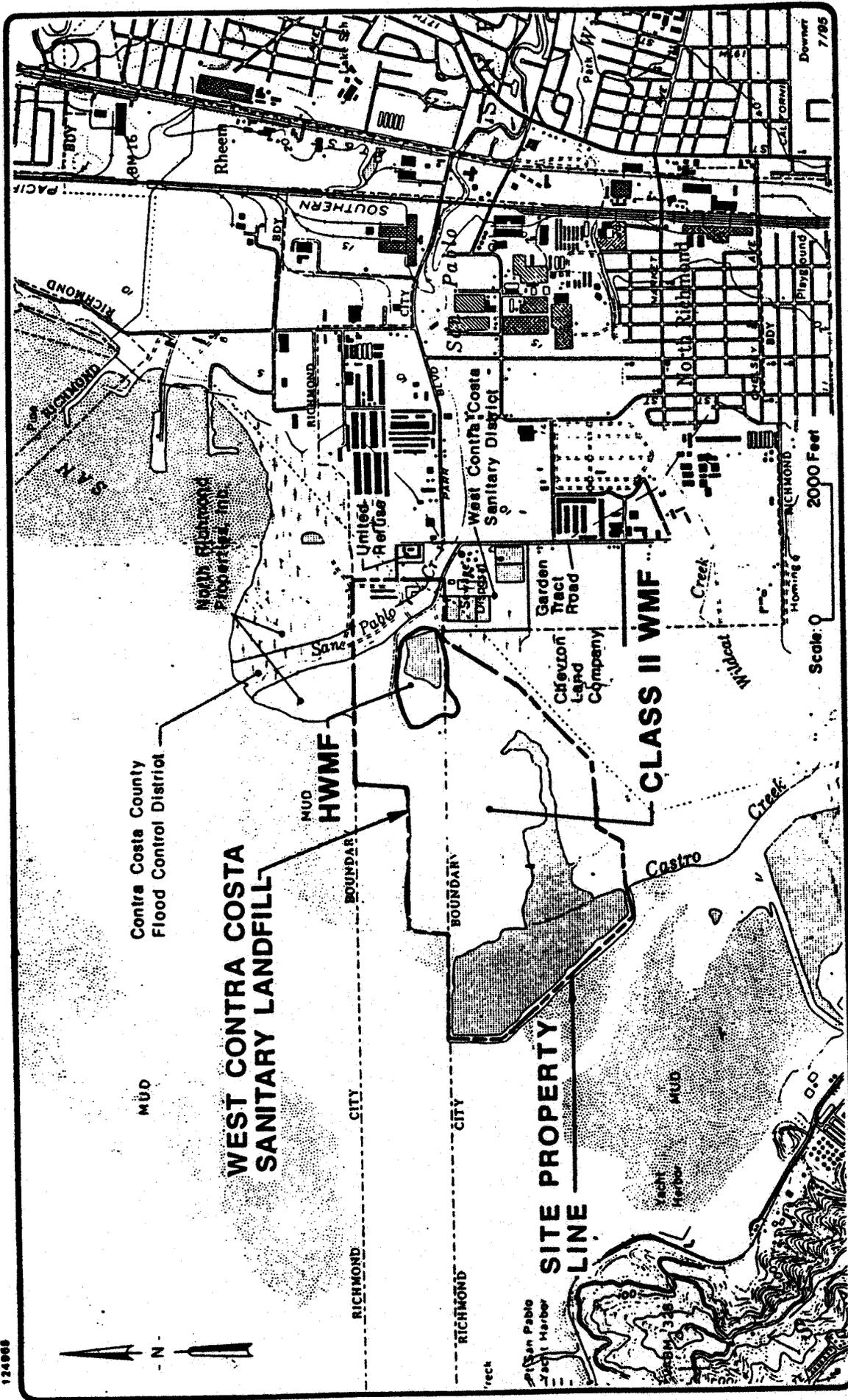


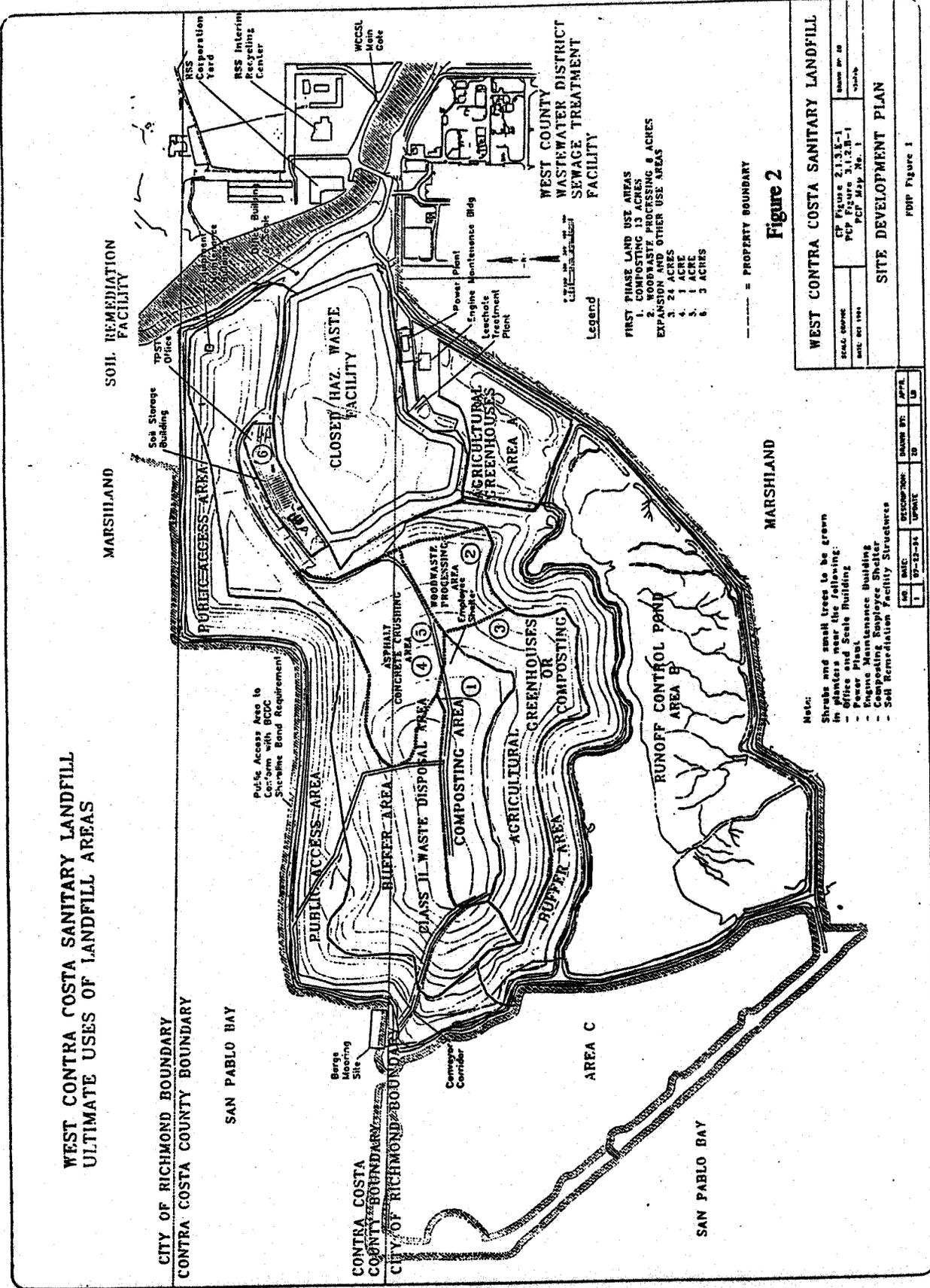
FIGURE  
Figure 1  
PROJECT NO.  
354-002.22

WEST COUNTY LANDFILL, INC.  
WEST CONTRA COSTA SANITARY LANDFILL  
RICHMOND, CALIFORNIA

**EMCON**

SITE LOCATION

WEST CONTRA COSTA SANITARY LANDFILL  
ULTIMATE USES OF LANDFILL AREAS



**WEST CONTRA COSTA SANITARY LANDFILL**

SCALE: NONE	GP Figure 2.1.3.1-1	DATE: 08/10/04	PCP Figure 3.1.2.B-1	NAME: DR. 00
	PCP Map No. 1			

**SITE DEVELOPMENT PLAN**

RDIP Figure 1

**Note:**

- Shrubs and small trees to be grown in planters near the following:
  - Office and Scale Building
  - Power Plant Maintenance Building
  - Composting Employee Shelter
  - Soil Remediation Facility Structures

NO.	DATE	DESCRIPTION	DRAWN BY	APPR.
1	08-10-04	UPDATE		

Waste Discharge Requirement No. 96-079  
West Contra Costa Class II Landfill  
Page 20

## **ATTACHMENT A**

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION**

**REVISED SELF MONITORING PROGRAM**

**FOR**

**WEST COUNTY LANDFILL, INC.**

**And**

**WEST CONTRA COSTA SANITARY LANDFILL, INC.**

**WEST CONTRA COSTA SANITARY LANDFILL  
ACTIVE CLASS II WASTE MANAGEMENT FACILITY  
RICHMOND, CONTRA COSTA COUNTY**

**ORDER NO. 96-079**

**CONSISTS OF**

**PART A**

**AND**

**PART B**

## PART A

### **A. GENERAL**

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No.73-16. This Discharge Monitoring Program is issued in accordance with Provision 7 of Regional Board Order No. 96-079.

The principal purposes of a discharge monitoring program are: (1) to document compliance with waste discharge requirements and prohibitions established by the Board, (2) to facilitate self-policing by the waste dischargers in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of standards of performance, and toxicity standards, (4) to assist the dischargers in complying with the requirements of the California Code of Regulations.

### **B. SAMPLING AND ANALYTICAL METHODS**

Sample collection, storage, and analyses shall be performed according to the most recent version of EPA Standard Methods and in accordance with an approved sampling and analysis plan.

Water and waste analysis shall be performed by a laboratory approved for these analyses by the State of California. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

### **C. DEFINITION OF TERMS**

1. A grab sample is a discrete sample collected at any time.
2. Receiving waters refers to any surface or groundwater which actually or potentially receives surface or groundwater which pass over, through, or under waste materials or contaminated soils. In this case the groundwater beneath and adjacent to the landfill areas, the surface runoff from the site, adjacent wetlands, San Pablo Creek, and San Pablo Bay are considered receiving waters.
3. Standard observations refer to:
  - a. Receiving Waters
    - i. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area.
    - ii. Discoloration and turbidity: description of color, source, and size of affected area.

- iii. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
- b. Perimeter of the waste management unit.
  - i. Evidence of liquid leaving or entering the waste management unit, estimated size of affected area and flow rate. (Show affected area on map)
  - ii. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - iii. Evidence of erosion and/or daylighted refuse.
- c. The waste management unit.
  - i. Evidence of ponded water at any point on the waste management facility.
  - ii. Evidence of odors, presence or absence, characterization, source, and distance of travel from source.
  - iii. Evidence of erosion and/or daylighted refuse.
  - iv. Standard Analysis (SA) and measurements are listed on Table A-3 (Attached)

**D. SAMPLING, ANALYSIS, AND OBSERVATIONS**

The discharger is required to perform sampling, analyses, and observations in the following media:

1. Groundwater per 27CCR, Section 20415(b)(1)(D)
2. Surface water per 27CCR, Section 20415(c)

and per the non-statistical portions of the general requirements specified in 27CCR, Section 20415(e).

**E. RECORDS TO BE MAINTAINED**

Written reports shall be maintained by the dischargers or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling.
3. Date and time that analyses are started and completed, and name of the personnel performing the analyses.

4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and detection limits for each analysis.

**F. REPORTS TO BE FILED WITH THE BOARD**

1. The discharger shall submit two semi-annual Self-Monitoring and Reporting Program Reports, one for the winter/spring (wet) season, and one for the summer/fall (dry) season. The reporting period for each semi-annual report is six months: winter/spring semester = January 1 to June 30; summer/fall semester = July 1 to December 31. Sampling events should take place approximately six months apart, toward the end of the first quarter for the winter/spring reporting period and toward the end of the third quarter for the summer/fall reporting period. **The submittal deadlines for the winter/spring and summer/fall semi-annual reports are July 31 and January 31, respectively.** The discharger shall also submit an Annual Self-Monitoring and Reporting Program Summary Report covering the previous monitoring year. The annual summary report may be combined with the summer/fall report. The semi-annual reports shall include, but are not limited to the following:

**a. Letter of Transmittal**

A letter transmitting the essential points in each report should accompany each report. Such a letter shall include a discussion of **any requirement** violations found during the last report period, and actions taken or planned for correcting the violations. If the Dischargers have previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred in the last report period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.

**b. Each semi-annual monitoring report shall include a compliance evaluation summary. The summary shall contain:**

- i. A graphic description of the elevation, velocity, and direction of groundwater flow under/around the waste management unit based upon the past and present water level elevations and pertinent visual observations.
- ii. The method and time of water level measurement, the type of pump used for purging, pump placement in the well; method of purging, pumping

rate, equipment and methods used to monitor field pH, temperature, and conductivity during purging, calibration of the field equipment, results of the field pH, temperature, conductivity and turbidity observations, well recovery time or rate (as applicable), and method of disposing of the purge water. Stabilization of field parameters may not be applicable for wells with extremely slow recovery. In place of tabulating field data, field sampling logs can be included as an appendix to the monitoring report.

- iii. Type of pump used, pump placement for sampling, a detailed description of the sampling procedure; number and description of equipment, field and travel blanks; number and description of duplicate samples; type of sample containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations.
- iv. A written discussion of the groundwater analyses indicating any change in the quality or characteristics of the groundwater.
- c. A comprehensive discussion of the compliance record and status, as well as any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the Waste Discharge Requirements and 27CCR.
- d. A map or aerial photograph shall accompany each report showing observation and monitoring station locations.
- e. Laboratory statements of results of analyses specified in Part B must be included in each report. The director of the laboratory whose name appears on the laboratory certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Board.
  - i. The methods of analyses and detection limits must be appropriate for the expected concentrations. Specific methods of analyses must be identified. If methods other than EPA approved methods or Standard Methods are used, the exact methodology must be submitted for review and approved by the Executive Officer prior to use.
  - ii. In addition to the results of the analyses, laboratory quality assurance/quality control (QA/QC) information must be included in the monitoring report. The laboratory QA/QC information should include the method, equipment and analytical detection limits; the recovery rates; an explanation for any recovery rate that is less than the recovery acceptance limits specified in the USEPA method procedures or the laboratory's acceptance limits, if they are more stringent than those in the USEPA method procedures; the results of equipment and method blanks; the results of spiked and surrogate samples; the frequency of quality control analysis; and the name and qualifications of the person(s) performing the analyses.

- f. An evaluation of the effectiveness of the leachate extraction system or control facilities, which includes an evaluation of leachate buildup within the disposal units and sump areas, a summary of leachate volumes removed from the units, and a discussion of the leachate disposal/treatment methods utilized.
- g. A summary and certification of completion of all standard observations for the waste management unit, the perimeter of the waste management unit, and the receiving waters.
- h. The quantity and types of waste disposed of during each quarter of the reporting period, and the locations of the disposal operations. Locations of the waste placement shall be depicted on a map showing the area, if any, in which filling has been completed during the previous calendar year.
- i. A summary statement describing the findings from the Dischargers: periodic load checking/screening program, waste characterization program, and any other observational/inspection programs.
- j. Tabular and graphical summaries of the monitoring data obtained during the previous year; the report should be accompanied by a 3<sup>1</sup>/<sub>2</sub>" computer data disk, MS-EXCEL format, tabulating the year's data.
- k. The Annual Monitoring Report shall be submitted to the Board covering the previous monitoring year. The Report shall include, but is not limited to, the following:
  - i. A graphical presentation of the analytical data [RWQCB-approved alternate procedure per 27CCR, Section 20415(e)(14)] for monitoring locations that have shown detectable concentrations during two consecutive monitoring events, or greater than ten percent detection frequency for any organic compound. Graphical representation must be provided for monitoring locations with metals and general chemistry analytical parameters that have an increasing trend for three consecutive monitoring events;
  - ii. A tabular summary of all the monitoring data obtained during the previous year;
  - iii. A comprehensive discussion of the compliance record, and the corrective actions taken or planned which may be needed to bring the dischargers into full compliance with the waste discharge requirements;
  - iv. A map showing the area, if any, in which filling has been completed during the previous calendar year;
  - v. A written summary of the groundwater analyses indicating any change in the quality of the groundwater; and

- vi. An evaluation of the effectiveness of the leachate monitoring/ control facilities, which includes an evaluation of leachate buildup within the disposal units, a summary of leachate volumes removed from the units, and a discussion of the leachate disposal methods utilized.

2. **Contingency Reporting**

- a. The Discharger shall report by telephone concerning **any leachate seepage** from the surface of the disposal area immediately after it is discovered. A written report shall be filed with the Board within seven days, containing at least the following information:
  - i. A map showing the location(s) of seepage;
  - ii. An estimate of the flow rate;
  - iii. A description of the nature of the discharge (e.g., all pertinent observations and analyses); and
  - iv. Corrective measures underway or proposed.
- b. Following the determination that groundwater analytical results for a monitoring location exceed the WQPS concentration limits (CLs), the Discharger shall follow the decision sequence in **Figure 2** for any monitoring locations still exceeding the CLs.

3. **Well Logs**

A boring log and a monitoring well construction log shall be submitted for each sampling well established for this monitoring program, as well as a report of inspection or certification that each well has been constructed in accordance with the construction standards of the Department of Water Resources. These shall be submitted within 45 days after the completion of well installation activities.

G. **WATER QUALITY PROTECTION STANDARDS**

The four parts of Water Quality Protection Standards (WQPS) are as follows:

1. **Constituents of Concern**

The Constituents of Concern (COC) for groundwater are those listed in Table 1 of this Self-Monitoring and Reporting Program.

2. **Concentration Limits**

Concentration Limits (CLs) have been established for each COC listed in Table 1. These CLs are shown in Table 2. The CLs were developed from the approved Class II WMF Corrective Action Groundwater Monitoring Program (CAGMP) submitted as required by Provision No. 7 of Order No. 96-079. The CLs were set at the PQLs for most SVOCs and VOCs. CLs were set above the PQLs for certain constituents that were (1) common laboratory contaminants (acetone, methylene chloride, bromoform, chloroform, toluene, phthalates, phenol), (2) derived from field sampling equipment and materials, and (3) periodically detected in some wells as a result of COC migration prior to implementation

of corrective measures or a result of the presence of waste fill outboard of containment structures. The CLs are well below water quality criteria for San Pablo Bay and Creek and therefore are protective of human health and the environment.

3. **Monitoring Points**

Monitoring Points for the Class II WMF are identified in Table 1 of this Revised Self-Monitoring Program. Because landfill operations predate collection of groundwater chemistry data at this site, background water quality monitoring locations do not exist; therefore, intra-well comparisons will be used for evaluating monitoring data. For those areas where COCs greater than the CLs existed prior to corrective measures, monitoring will be conducted to demonstrate that the levels of COCs have either stabilized or are decreasing.

4. **Point of Compliance**

The Point of Compliance for this facility is the vertical surface that extends from the outside edge of the lateral containment structures through the uppermost aquifer underlying the unit.

**PART B**

**1. DESCRIPTION OF OBSERVATION STATIONS AND SCHEDULE OF OBSERVATIONS**

**A. GROUNDWATER, LEACHATE, AND STORM WATER, MONITORING – Report Semi-Annually (Groundwater) or Annually (Leachate and Surface Water)**

- i. Groundwater:** Groundwater shall be sampled and analyzed as detailed in Table 1. Monitoring well locations are shown in Figure 1. CLs for groundwater sampled at the monitoring wells are shown in Table 2.

**Table 1 -Groundwater Monitoring Points, Parameters and Sampling Frequency - West Contra Costa Class II Landfill**

<b>Monitoring Wells</b>	<b>Analytical Parameters</b>	<b>Sampling Frequency<sup>1,2</sup></b>
<b>E-22R Area Wells<sup>3</sup></b> <b>Surficial WBZ:</b> E-34R, M-70, M-47 <b>Shallow WBZ:</b> M-73, M-74 <b>Medium WBZ:</b> E-21R, M-71, M-72  <b>Class II WMF Wells<sup>5</sup></b> <b>Surficial WBZ:</b> Group 1 M-58, M-50, M-60, M-62 M-64, M-66, M-68  Group 2 M-48, M-59, M-51, M-61 M-63, M-65, M-67, M-69  <b>Shallow WBZ:</b> M-4, M-45, M-27, M-52, M-54, M-55, M-22, M-57, M-41, M-43, M-9, M-6, M-53, M-16R, M-56, M-24  <b>Medium WBZ:</b> M-55 <sup>4</sup>	<b>VOCs:</b> EPA Method 8260  <b>SVOCs:</b> EPA Method 8270  <b>Dissolved Metals<sup>6,9</sup>:</b> Arsenic, Barium, Cadmium, Copper, Chromium, Lead, Mercury, Nickel, Vanadium, Zinc  <b>General Water Quality Param.</b> <b>pH</b> Ammonia (total and unionized)  <b>40 CFR 258 Appendix II</b> <b>constituents:</b> Pesticides & PCBs: EPA Method 8080 Chlorophenoxy Herbicides: EPA Method 8151  <b>Additional Metals<sup>7</sup>:</b> Antimony, Beryllium, Cobalt, Selenium, Silver, Thallium, Tin  <b>Cyanide:</b> EPA method 9010 <b>Sulfide:</b> EPA method 9030	<b>VOCs and pH:</b> -Semi-annual for E-22R Area wells -Semi-annual for Class II WMF surficial WBZ wells until inward hydraulic gradient across the slurry walls or BMB is consistently maintained for 1 year <sup>8</sup> , then annual thereafter for group 1 wells (1st half of year) and group 2 wells (2nd half of year) -Semi-annual for Class II WMF shallow and medium WBZ wells  <b>SVOCs:</b> Once every 5 years for SVOCs <b>Dissolved Metals:</b> Semi-annual until background established, then once every 5 years.  <b>40 CFR 258 Appendix II</b> <b>constituents:</b> Once every 5 years for E-22R Area wells and shallow and medium WBZ Class II WMF wells  Once every 5 years until inward hydraulic gradient is consistently maintained across slurry walls and BMB for surficial WBZ Class II WMF wells. Discontinue thereafter if no organic constituents are detected above CLs.

- Notes:
- 1 - See Figure 2 for procedures to follow when CLs are exceeded.
  - 2 - Sampling for the first semi-annual event of the year is typically performed, weather permitting, during the first month of the first quarter. Sampling for the second semi-annual event and annual event is typically performed, weather permitting, during the first month of the third quarter.
  - 3 - Wells in the E-22R Area are sampled semi-annually and analytical results are reported under both the HWMF and Class II CAGMPs
  - 4 - Medium WBZ Well M-55 is screened in the first WBZ below the M-17/21 slurry wall (i.e., the wall cuts off the surficial and shallow WBZs at that location).
  - 5 - Class II WMF wells other than those in the E-22R area.
  - 6 - EPA methods: Arsenic (7060 or 6010), Barium (6010), Cadmium (6010), Chromium (6010), Copper (6010), Lead (7421 or 6010), Mercury (7470), Nickel (6010), Vanadium (6010), Zinc (6010).
  - 7 - EPA methods: Antimony (6010), Beryllium (6010), Cobalt (6010), Selenium (7741 or 7740), Silver (6010), Thallium (7841), Tin (6010).
  - 8 - During routine sampling, groups 1 and 2 wells are sampled during first half and second half of the year, respectively.
  - 9 - This subset of the 40 CFR 258 Appendix I metals is used as a surrogate for the entire suite of Appendix I metals.

**Table 2 – Concentration Limits for Groundwater-  
 West Contra Costa Class II Landfill**  
 (See Figure 2 for procedures to follow when CLs are exceeded)

CONSTITUENTS OF CONCERN	Practical Quantitation Limits <sup>1</sup> (ppb)	US EPA Test Method	Concentration Limits (ppb)
<u>Specified VOCs</u>		8260	
Acetone	20		100
Methylene chloride	10		50
Bromoform	10		50
Chloroform	10		50
Benzene	10		30
Toluene	10		50
Ethylbenzene	10		50
Xylene	10		50
<u>Other VOCs</u>	Various	8260	PQLs
<u>Specified VOCs</u>		8270	
Phthalates	10		
bis(2-thylhexyl)	10		100
Butylbenzyl	10		50
di-ethyl	10		50
di-methyl	10		50
di-n-butyl	10		50
di-n-octyl	10		50
Phenol	10		100

CONSTITUENTS OF CONCERN	Practical Quantitation Limits <sup>1</sup> (ppb)	US EPA Test Method	Concentration Limits (ppb)
<u>Other SVOCs</u>	Various	8270	PQLs
<u>Metals<sup>1</sup></u>			
Arsenic	7	7060 or 6010	PQL/Background <sup>2</sup>
Barium	20	6010	PQL/Background <sup>2</sup>
Cadmium	5	6010	PQL/Background <sup>2</sup>
Chromium	10	6010	PQL/Background <sup>2</sup>
Copper	10	6010	PQL/Background <sup>2</sup>
Lead	5	7421 or 6010	PQL/Background <sup>2</sup>
Mercury	1	7470	PQL/Background <sup>2</sup>
Nickel	40	6010	PQL/Background <sup>2</sup>
Vanadium	10	6010	PQL/Background <sup>2</sup>
Zinc	20	6010	PQL/Background <sup>2</sup>
Antimony	5	6010	PQL/Background <sup>2</sup>
Beryllium	5	6010	PQL/Background <sup>2</sup>
Cobalt	10	6010	PQL/Background <sup>2</sup>
Selenium	10	7741 or 7740	PQL/Background <sup>2</sup>
Silver	20	6010	PQL/Background <sup>2</sup>
Thallium	5	7841	PQL/Background <sup>2</sup>
Tin	50	6010	PQL/Background <sup>2</sup>
<u>Pesticides and PCBs</u>	Various	8080	PQLs
<u>Chlorophenoxy Herbicides</u>	Various	8151	PQLs
<u>Cyanide</u>	10	9010	PQL
<p><sup>1</sup>PQLs may vary based on the results of the laboratory's annual MDL survey and any sample dilution required because of matrix interferences. Metals data will provide supplemental information to the VOC and SVOC analyses and are not intended for use as indicator parameters apart from the VOC and SVOC analyses.</p> <p><sup>2</sup>Concentration Limit is the higher of either the routine PQL or the background value.</p>			

- ii. **Leachate:** Leachate and seeps shall be sample and analyzed as detailed in Table 3. Leachate monitoring locations are shown in Figure 1. The Discharger shall analyze for all Subtitle D, Appendix II compounds not listed in Table 3, once every five years.

**Table 3 – Leachate and Seepage Monitoring Points, Parameters, and Sampling Frequency -  
 West Contra Costa Class II Landfill**

Monitoring Location	Analyses	EPA Method (or equivalent)	Sampling Frequency
Leachate well/sump: QR-17S; QR-21S; QR-33S; QR-15S; E-39; and Leachate discharge (seep) locations	VOCs	8260	Leachate wells – Annually  Leachate discharge (seep) – Each occurrence
	SVOCs	8270	
	Dissolved Metals		
	Arsenic	7060 or 6010	
	Barium	6010	
	Cadmium	6010	
	Copper	6010	
	Chromium	6010	
	Lead	7421 or 6010	
	Mercury	7470	
	Nickel	6010	
	Vanadium	6010	
	Zinc	6010	
	pH	9040	
	Ammonia (total and unionized)	350.1	
Cyanide	335.2		
Pesticides/PCB	8080		
Leachate discharge (seep) locations only	Total Oil and Grease	SM 5520B'	
	COD	410.1	
	96-hour Toxicity Bioassay using Mysid Shrimp	N/A	
			Daily until remedial action is taken or seep ceases

**iii. Surface Water:** Surface water monitoring data collected under the SWRCB's Industrial Activities Storm Water General Permit or for discharge of surface water runoff from retention basins shall be submitted with the winter/spring (wet) season semi-annual monitoring report due each July 31. Included should be the standard storm water annual report forms, a map of the storm water monitoring locations, and any summary data tables or attachments, as appropriate. Analytical laboratory data reports need not be included.

**B. WASTE MONITORING - Observe Monthly Unless Otherwise Noted, Report Semi-annually (While landfill is active)**

**i.** Record the total volume and weight of waste in cubic yards and tons disposed of at the site during each month showing locations and dimensions on a sketch or map.

- ii. Record a description of waste stream to include percentage of waste type (i.e. municipal solid waste, construction and demolition waste, asbestos-containing waste, medical waste, and industrial waste including: (i) asbestos, (ii) ash, (iii) treated auto-shredder waste (TASW), (iv) petroleum contaminated soil, (v) lead contaminated soils, (vi) sewage and wastewater treatment sludges with metal content, (vii) industrial sludges, and (viii) industrial filters.
- iii. Remaining landfill capacity/waste volume in place at the end of the reporting period.
- iv. TASW accepted for disposal shall be sampled and analyzed quarterly for: PCBs (EPA Method 8080) and for soluble lead, mercury, cadmium, trivalent and hexavalent chromium copper, nickel, and zinc (by WET Method).

**C. FACILITIES MONITORING - Observe Quarterly, Report Semi-annually**

The Dischargers shall inspect all facilities to ensure proper and safe operation once per quarter and report semi-annually. The facilities to be monitored shall include, but not be limited to:

1. Leachate collection and removal/pumping system
2. Surface water impoundments/retention basins
3. Leachate Management facilities and secondary containment
4. Perimeter diversion channels and run-on/run-off control features
5. Final cover system
6. Re-use areas including the composting and soil recycling locations.

**D. PHOTODOCUMENTATION OF FACILITIES MONITORING - Observe Quarterly, Report Annually**

The Dischargers shall provide photodocumentation of conditions at locations that include, but are not limited to, the landfill facilities listed in Part B.1.C above. Locations from which photographs are taken should be permanent stations such that they can be used in successive reports.

E. ON-SITE OBSERVATIONS

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
V-1 thru V-'n'	Located on the waste disposal area as delineated by a grid network	Standard observations for the waste management unit	Bi-monthly observations (rainy season), Monthly observations (dry season) <b>Report Semi-annually</b>
P-1 thru P-'n'	Located at equidistant intervals not exceeding 1000 feet around the perimeter of the waste management unit	Standard observations for the perimeter	Bi-monthly observations (rainy season), Monthly observations (dry season) <b>Report Semi-annually</b>

A map showing visual and perimeter compliance points (V and P stations) shall be submitted by the Dischargers along with the semi-annual monitoring report.

F. SEEPAGE MONITORING

Seepage monitoring stations include any point at which seepage is found occurring from the disposal area. The landfill perimeter shall be monitored **quarterly** according to the following with the results reported **semi-annually**

STATION	DESCRIPTION	OBSERVATIONS	FREQUENCY
S-1 thru S-'n'	At any point at which seepage is found occurring from the disposal area.	Standard observations for the perimeter and standard analyses (Table 3, perform analyses once per seep)	Daily until remedial action is taken and seepage ceases

**G. PIEZOMETER/LEACHATE ELEVATION MONITORING**

Piezometric monitoring

1. Groundwater piezometric elevation monitoring shall be conducted at the following locations on a quarterly<sup>1</sup> basis:

**Surficial Zone:** E-34R, M-25, M-47, M-48, M-49, M-50, M-51, M-58, M-59, M-60, M-61, M-62, M-63, M-64, M-65, M-66, M-67, M-68, M-69, M-70, MPZ-1, Q-3, Q-9, Q-11.

**Shallow Zone:** M-4, M-6, M-9, M-16R, M-22, M-24, M-26, M-27, M-41, M-43, M-45, M-52, M-53, M-54, M-56, M-57, M-73, M-74.

**Medium Zone:** E-21R, M-23, M-42, M-44, M-46, M-55, M-71, M-72.

2. Leachate elevation monitoring shall be conducted at the following locations on a quarterly<sup>1</sup> basis:

**Leachate Wells**<sup>2</sup>: QR-2, QR-3, QR-5, QR-6, QR-7S, QR-8, QR-12, QR-15S, QR-16, QR-17S, QR-20S, QR-21S, QR-22S, QR-23, QR-24S, QR-25S, QR-26, QR-27, QR-28S, QR-29S, QR-31S, QR-32S, QR-33S, QR-36, QR-37, QR-38, QR-39, and QR-43.

**Notes:**

- <sup>1</sup> Surficial zone groundwater and leachate elevation monitoring will change to monthly following completion and startup of leachate extraction system.
- <sup>2</sup> As these leachate wells are located within waste they may become blocked due to differential settlement. As this occurs, the Discharger shall notify the Board.

**H. LEACHATE EXTRACTION MONITORING**

1. The Dischargers shall report daily, weekly, monthly, and average daily rates for pumping/removal of leachate from the total system and monthly and average daily rates for each sump area. This information will be provided with the semi-annual monitoring report.
2. Included with each semi-annual report will be an evaluation of the effectiveness of pumping on reduction of leachate levels throughout the WCCSL Class II WMF.
3. All surface leachate extraction lines and storage structures shall be double contained.

**I. LANDFILL GAS CONDENSATE**

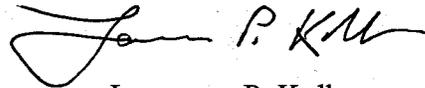
Landfill gas condensate removed from the landfill's gas collection system shall be transported for disposal at a wastewater treatment or leachate treatment facility. For

each condensate monitoring point, the Discharger shall include in the **semi-annual monitoring report** a measurement of the estimated volume of condensate collected, and the **monthly and average daily condensate volumes** for each condensate collection point.

I, Lawrence P. Kolb, Assistant Executive Officer, hereby certify that the foregoing Revised Self-Monitoring and Reporting Program:

1. Has been developed in accordance with the procedures set forth in this Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in this Board's Order No. 96-079.
2. Is effective on the date shown below.
3. May be reviewed or modified at any time subsequent to the effective date, upon written notice from the Executive Officer.

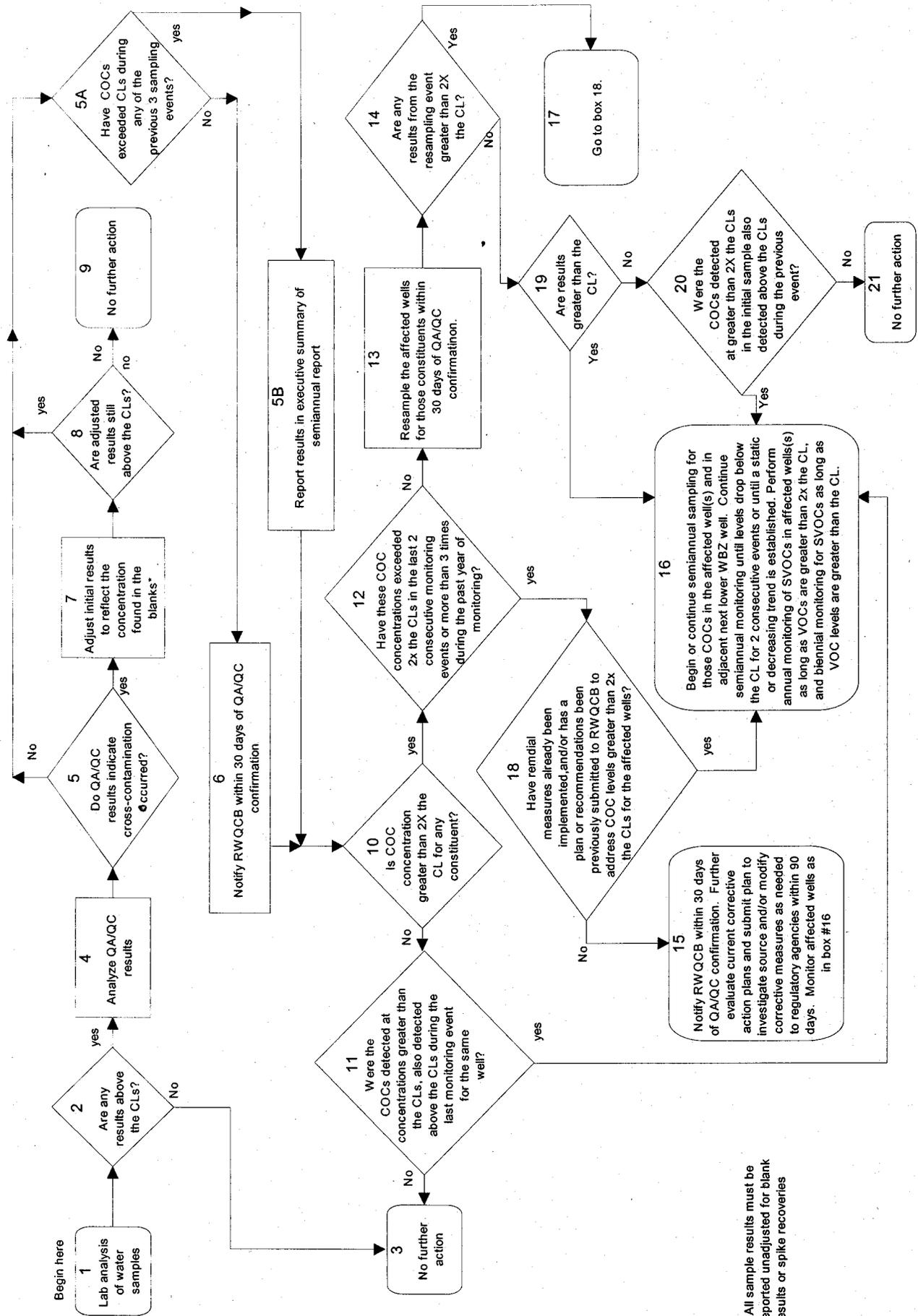
Date Ordered: December 29, 1999



Lawrence P. Kolb  
Assistant Executive Officer

Attachment: Figure 1 - Monitoring Well Location Map  
Figure 2 - Flow Chart for Procedures to Follow in the Event Concentration Limits (CLs) are Exceeded





\* All sample results must be reported unadjusted for blank results or spike recoveries

**FIGURE 2. WEST CONTRA COSTA SANITARY LANDFILL, CLASS II WASTE MANAGEMENT FACILITY  
GROUNDWATER MONITORING PROGRAM  
FLOW CHART FOR PROCEDURES TO FOLLOW IN THE EVENT CONCENTRATION LIMITS (CLs) ARE EXCEEDED**